

specification notes

- Tree locations are subject to confirmation of engineering and foundation details. Foundations shall comply with guidelines set by structural engineering consultants, and shall accord with the current NHBC Standards 'Building near Trees' and shall accommodate immediate and future impact of tree or shrubs on buildings and their foundations.
- Any proposed substitutions, whether species, cultivar, pot size or other specification, must be approved by landscape architect prior to planting;
- Any significant layout changes necessitating revised details (such as new retaining walls casting shade on planting beds) should be reported to the landscape architect;
- All Nursery Stock to comply with BS3936 Part 1:1992 and all subsequent amendments;
- All Landscape operations to comply with BS4428:1989 and all subsequent amendments;
- The landscape contractor to make him/herself aware of any underground services prior to planting.
- Any poor site or soil preparation or conditions to be reported to site manager for remediation prior to planting.
- No substitutions are to be made without prior approval

SOILS

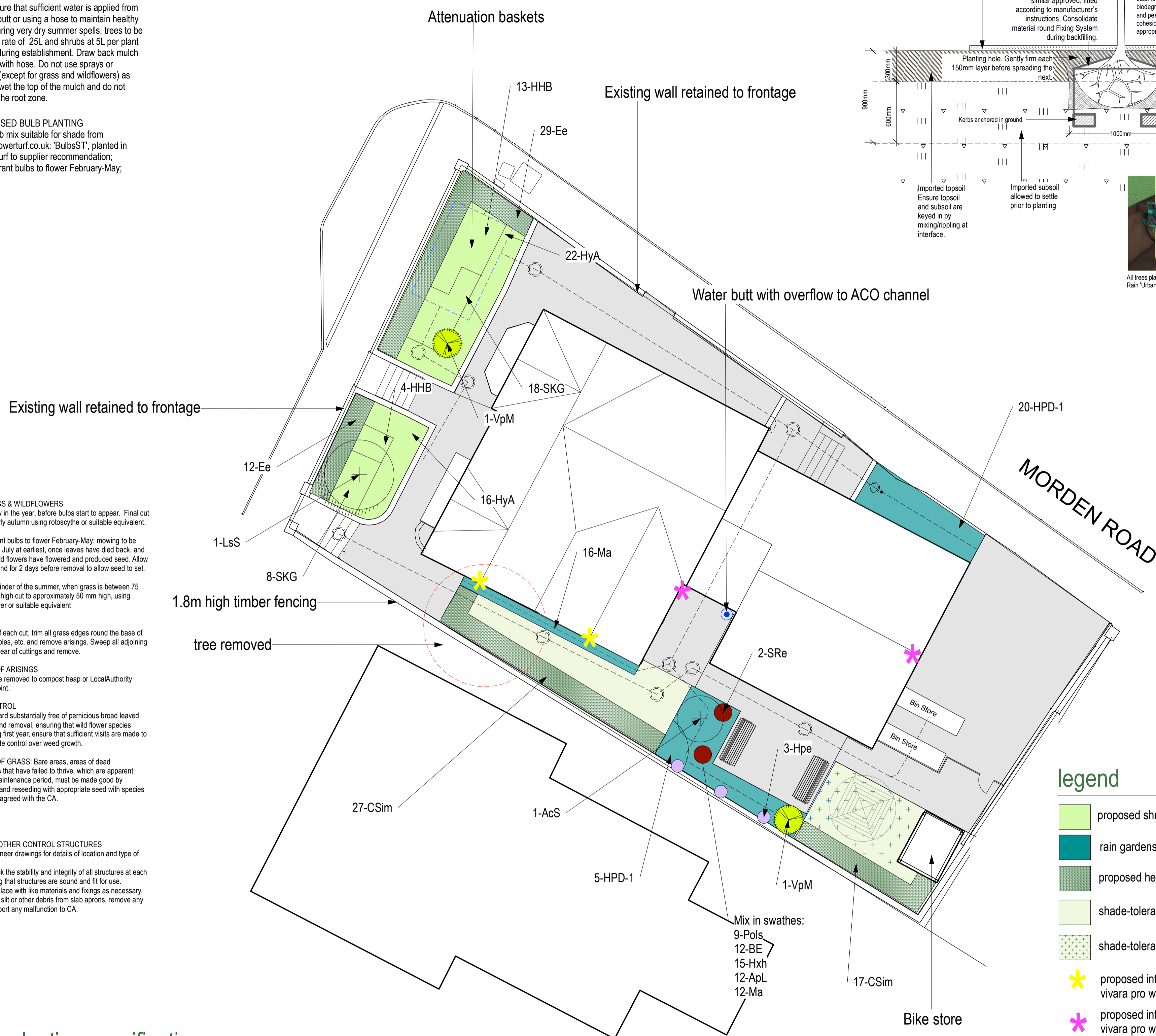
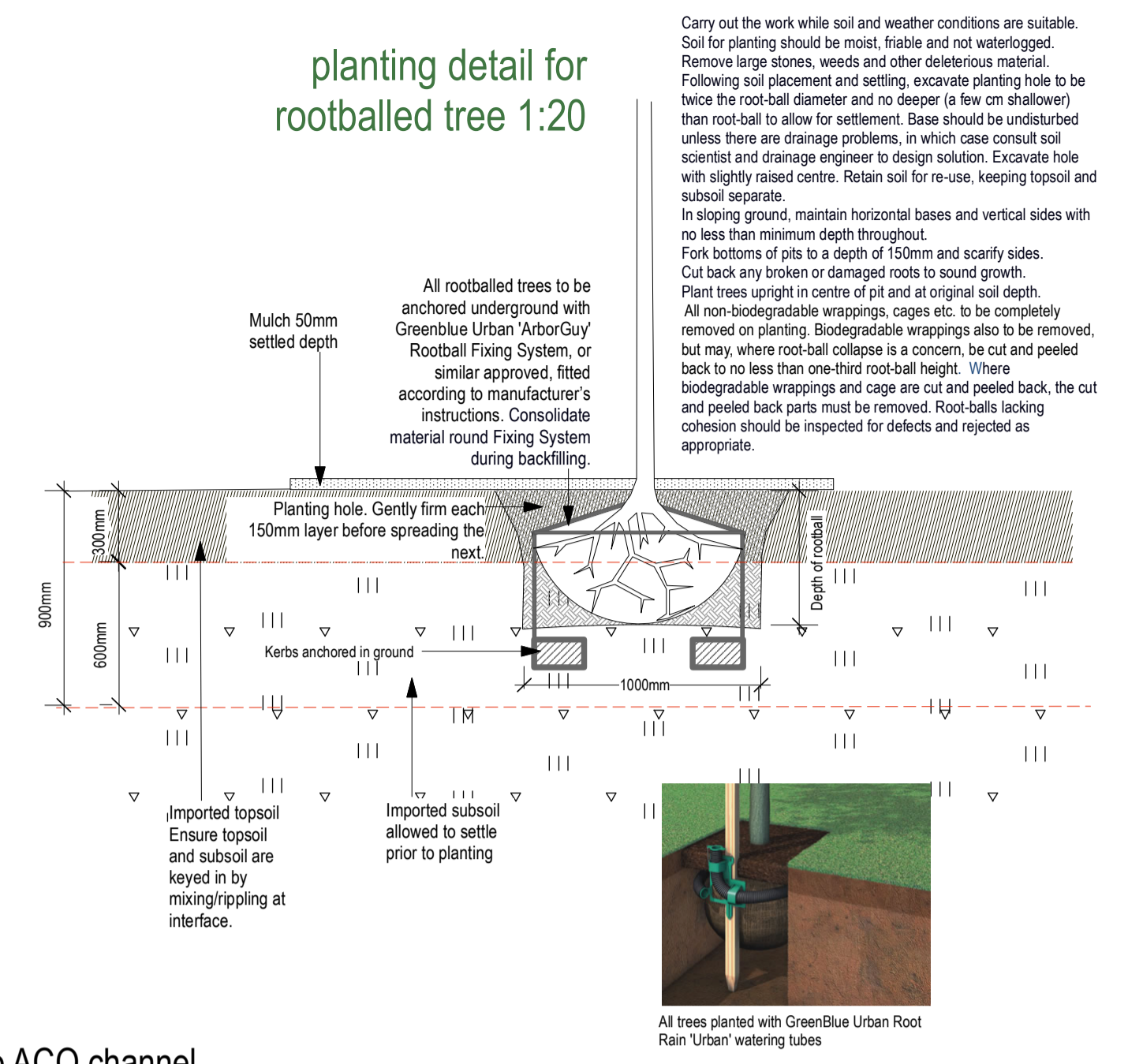
- All imported soils for tree and shrub planting will comprise sandy loams as per BS 3882:2015 and BS 8601:2013, of slightly acid pH on placement and with excellent drainage and aeration properties. Details of the soils to be imported (certification in accordance with BS 3882:2015 and BS 8601:2013) Soil scientist to advise if ripping is required underneath tree pit.
- Soil for rain gardens, in addition to the above specification, to be of minimum porosity 40%, and minimum conductivity 30m/hr. Refer to Engineer details for SUDS construction details;
- The protection of topsoil and subsoil for planting areas should accord with the Construction Code for the Sustainable Use of Soils on Construction Sites (DEFRA, 2009), BS 3882:2015 and BS 8545:2014;
- Great care must be taken to preserve soil quality and integrity;
- All ground modelling to be to smooth and flowing contours new soil edge to be feathered to marry into adjacent levels;
- All planting and grass areas to be cultivated, with prior ripping where necessary to relieve compaction caused by tracking;
- Soils allowed to settle prior to planting or seeding;
- Settled soil profiles to be 300mm topsoil over 600mm subsoil for all areas of tree planting/mixed tree and shrub planting, including provision for a minimum 10 cubic metres of root available soil (11m2) for each new tree. Shrubs only and mixed shrub and to receive 300mm topsoil over 300mm subsoil; grass or wildflower turf to be 150mm topsoil over 150mm subsoil; 400mm depth to rain gardens

TREE PITS

- Tree pits to be excavated to minimum 1m x 1m depth of rootball. In sloping ground, maintain horizontal bases and vertical sides with no less than minimum depth throughout. If compacted, break up bottoms of pits to a depth with a fork and scarify sides;
- All tree pits to be back filled with 600mm subsoil followed by 300mm topsoil;
- Rootballed trees to be anchored underground with Greenleaf Rootball Fixing System and planted with Greenleaf Root Rain Urban watering pipes, fitted according to manufacturer's instructions;
- Bare root and containerised trees (if RB specification not available) to be anchored with short triple softwood stakes a maximum of one quarter the height of the tree above ground, and fixed with biodegradable hessian ties such as 'Naturetie' available in 30m rolls from GreenBlue Urban.
- Tree supply, planting and aftercare must accord with BS 8545:2014.
- No tree will be planted until it has been found to be compliant with Table 1, p.21, BS 8545:2014 – this will be established via inspections on delivery
- All non-biodegradable wrappings, cages, bamboo canes, labels etc. to be completely removed on planting. Biodegradable wrappings also to be removed, but may, where root-ball collapse is a concern, be cut and peeled back to no less than one-third root-ball height, and peeled back wrapping removed not folded in;
- All planting beds adjacent grass areas and tree pits in grass to be edged with half moon edging tool to separate mulch from grass by forming neat and vertical edges;
- All planting beds but not tree pits to receive peat-free compost during cultivations at a rate of 1m3 to 20m2 and slow release fertiliser (e.g. Ficote 140) at rate of 25g/plant; beds to be thoroughly watered following planting and before mulching

- All planting beds to receive Green-tech mycorrhizal Root Grow (granules for general planting and root dip for bare root planting), applied according to manufacturer recommendations;
  - Mulch to be dark brown mixed conifer bark of particle size 8-35mm and pH range 5.0-7.0 to BS PAS 100:2005; mulch to be laid to 75mm (settled) depth.
- WATERING
- During tree, hedge, shrub, perennial and grass establishment and for duration of maintenance period ensure that sufficient water is applied from the water butt or using a hose to maintain healthy growth. During very dry summer spells, trees to be watered at rate of 25L and shrubs at 5L per plant per week during establishment. Draw back mulch and water with hose. Do not use sprays or sprinklers (except for grass and wildflowers) as these just wet the top of the mulch and do not penetrate the root zone.
- NATURALISED BULB PLANTING
- 10m2 bulb mix suitable for shade from www.wildflowerurf.co.uk: 'BulbsST', planted in groups in turf to supplier recommendation; shade-tolerant bulbs to flower February-May;

planting detail for rootballed tree 1:20



planting management

- Maintenance operations shall include:
- Litter clearance;
  - Watering;
  - Control of insects, fungus and other diseases;
  - Control of weeds;
  - Pruning and trimming;
  - Refirming and other operations necessary for proper growth; and
  - Regular checking and repair / removal of tree gys/stakes and ties as necessary.
- Maintenance must be carried out at the appropriate time in order to achieve the standards described. Additional management will be required during drought or after strong winds or other disturbances.
- Health & safety legislation
- All operations must comply with relevant sections of the following legislation:
- Health and Safety at Work Act 1974;
  - Control of Pollution Act 1974;
  - Food and Environment Protection Act 1985;
  - The Wildlife and Countryside Act 1981: Schedule 9 Section 14 makes it an offence for anyone to knowingly introduce Japanese Knotweed into the wild.
  - The Control of Pesticides Regulations 1986; these regulations require all those who handle or use pesticides (including herbicides) to hold approved Certificates of Competence. Only approved pesticides as covered under this Act may be used.
  - The Environmental Protection (Duty of Care) Regulations 1991; these regulations require all producers, carriers and disposers of waste to follow a Code of Practice and keep records. Any material contaminated with Japanese Knotweed is a 'waste' unless treated for re-use.
  - The Health and Safety (First Aid) Regulations 1981; and
  - Guidance notes produced by the Health and Safety Executive with respect to safe working practices.
- generally
- REINSTATEMENT
- Reinstate disturbance to soil structure, mulch or planting to original condition
- CONTROL OF PESTS
- Combat any attack by mammals/fungus/insect/other pests. Submit proposals for control method to CA for approval
- WATERING
- Supply: Potable mains water.
- Quantity: Draw back mulch and wet full depth of topsoil.
- Application: Do not damage or loosen plants.
- Compacted soil: Loosen or scoop out, to direct water to root zone.
- Frequency: as often as necessary to maintain healthy plant growth.
- DISPOSAL OF ARISINGS
- Remove from site to approved tip.
- Compostable material to be removed to Local Authority recycling collection point.
- LITTER/TIPPED MATERIALS
- Collect and remove from site to approved tip.
- KNOTWEED
- Appearance of knotweed should be reported to CA for instruction.
- PROTECTION OF PAVED AREAS
- Protect areas affected by maintenance operations using boards/tarpaulins. Do not place excavated or imported materials directly on paving.
- CLEANLINESS
- Soil and arisings: Remove from hard surfaces.
- Leave the works in a clean, tidy condition at completion and after any maintenance operations.
- PEDESTRIAN ACCESS
- Wherever works impede pedestrian or vehicular access the Contractor shall provide and maintain safe alternative routes alongside the affected work area

- REFIRMING OF TREES, SHRUBS AND PERENNIALS
- Timing: After strong winds, frost heave and other disturbances.
- Refirming: Tread around the base until firmly bedded. Collars in soil at base of tree stems, created by tree movement: Break up by fork, avoiding damage to roots. Backfill with topsoil and refirm.
- Ensure trees are vertical and adjust tree guys, stakes or ties as necessary.
- Ensure that stakes are self supporting and reduce in height by one third each year to complete removal at end of third year. Adjust tie and spacer to top of stake. Ensure stakes do not come into contact with tree directly. If sufficient anchorage has not been established at the end of the third year then tree is to be replaced.
- Loosen off tree ties regularly to accommodate new growth and aim for complete removal of stakes in Year 3.
- WATERING
- During establishment and for duration of maintenance period ensure that sufficient water is applied using a hose to maintain healthy growth. During very dry summer spells, trees to be watered at rate of 10L per plant per week during establishment. Where watering tube is not fitted, draw back mulch and water with hose. Do not use sprays or sprinklers as these just wet the top of the mulch and do not penetrate the root zone.
- PRUNING
- In accordance with good horticultural and arboricultural practice and at appropriate season for the type of plant. Prune to remove dead, dying or diseased wood and to promote healthy growth. Removing branches: Do not damage or tear the stem.
- Wounds: Keep as small as possible and cut cleanly back to sound wood.
- Cutting: Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.
- Larger branches: Prune neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.
- Appearance: Thin, trim and shape each specimen appropriately to species, location, season, and stage of growth, leaving a well balanced natural appearance.
- Tools: Use clean sharp secateurs, hand saws or other approved tools. Trim off ragged edges of bark or wood with a sharp knife.
- Compostable material to be removed to compost heap on site
- FORMATIVE PRUNING OF YOUNG TREES
- Formative pruning of young trees will be to BS 3998:2010 and mulch circles to trees will be maintained for a minimum 3 years.
- Time of year: Do not prune during the late winter/early spring sap flow period.
- Young trees up to 4 m high:
- Crown prune by removing dead branches and reducing selected side branches by one third to preserve a well balanced head and ensure the development of a single strong leader.
  - Remove duplicated branches and potentially weak or tight forks. In each case cut back to live wood.
  - Whips or feathered trees: Do not prune except to remove damaged wood.
- FAILURES OF PLANTING: Plants which have failed to thrive, which are apparent during the maintenance period may be made good by replanting at discretion of the CA. Review the reason for failure to inform consideration of selecting alternative species, location or replacement soil as directed by CA.

- WEED CONTROL GENERALLY
- Litter clearance;
  - Watering;
  - Control of insects, fungus and other diseases;
  - Control of weeds;
  - Pruning and trimming;
  - Refirming and other operations necessary for proper growth; and
  - Regular checking and repair / removal of tree gys/stakes and ties as necessary.
- WEED CONTROL GENERALLY
- Litter clearance;
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  - Control of insects, fungus and other diseases;
  - Control of weeds;
  - Pruning and trimming;
  - Refirming and other operations necessary for proper growth; and
  - Regular checking and repair / removal of tree gys/stakes and ties as necessary.
- WEED TOLERANCE: weed cover 5% and not to reach more than 100mm high. Do not damage adjacent plants, trees.
- HAND WEEDING
- Remove entire weed, including roots.
- Remove the minimum quantity of soil, and disturb plants, bulbs and mulched surfaces as little as possible.
- Completion: Rake area to a neat, clean condition.
- HORTICULTURAL CHEMICALS
- Seek approval for use from CA. Not to be used near water.
- MAINTENANCE OF MULCH
- Top up mulch annually to maintain 50mm settled depth of bark mulch to specification given below.
- Weeding: Remove weeds growing on or in mulch by hand.
- PARTICULAR REQUIREMENT FOR SPECIFIC SPECIES: HELLEBORUS
- Remove old dying leaves in spring to allow new regrowth
- HYDRANGEA spp
- Cut back by one third in late winter/early spring. Allow dried flowerheads to persist during winter for pollinator habitat.
- CLIMBERS (Hydrangea)
- These are self-clinging. Once new growth has established and plant attaching to the fence, remove canes and ties, leaving timber trellis in place unless easy to remove without damaging plant.
- Check back at each maintenance visit to ensure that all new growth is covering the fence, tie in or remove any loose growth and cut out any dead sections.
- HEDGES
- Euonymus hedge to be maintained at 1.2m-1.4m by biennial cutting in late summer/late winter, and Cotoneaster hedge at height of fence, once berries have been eaten by birds, by biennial cutting in winter, with side trimming if necessary at other times of year.
- Manage hedges so as not to invade adjacent footpaths or compromise boundary treatments.
- Tall, thick hedgerows are of more value to wildlife than low over-managed hedges, and provide better screening and softening of the built landscape.
- All equipment used for Hedge Cutting shall be appropriate for the task, and must be kept properly maintained and in a well sharpened condition.

- LONG GRASS & WILDFLOWERS
- First 3 years: keep planting areas clear of pernicious weeds by hand weeding
- Shade-tolerant bulbs to flower February-May; mowing to be carried out in July at earliest, once leaves have died back, and grass and wild flowers have flowered and produced seed. Allow to lie on ground for 2 days before removal to allow seed to set.
- For the remainder of the summer, when grass is between 75 and 100 mm high cut to approximately 50 mm high, using cylinder mower or suitable equivalent
- EDGES
- At the time of each cut, trim all grass edges round the base of kerbs, manholes, etc. and remove arisings. Sweep all adjoining hard areas clear of cuttings and remove.
- REMOVAL OF ARISINGS
- Arisings to be removed to compost heap or Local Authority Collection Point.
- WEED CONTROL
- Keep the sward substantially free of pernicious broad leaved weeds by hand removal, ensuring that wild flower species thrive. During first year, ensure that sufficient visits are made to keep complete control over weed growth.
- FAILURES OF GRASS: Bare areas, areas of dead grass/flowers that have failed to thrive, which are apparent during the maintenance period, must be made good by recultivation and reseeding with appropriate seed with species and at times agreed with the CA.
- FERTILISER
- Do not use
- SUDS AND OTHER CONTROL STRUCTURES
- Refer to engineer drawings for details of location and type of structures.
- Visually check the stability and integrity of all structures at each visit, ensuring that structures are sound and fit for use. Repair or replace with like materials and fixings as necessary. Remove any silt or other debris from slab aprons, remove any blockage; report any malfunction to CA.

planting specification

Spacing	ID	No.	Latin Name	Scheduled Size	
	SPEC	AcS	1 Acer 'Seiryu'	2.5m multi-stem	40L
	5/m2	ApL	12 Aster pyrenaeus 'Lutetia'	30-40cm, 5L	Full pot
	8/m2	BE	12 Bergenia 'Eroica'	30-40, 5L	Full pot
	3/linm	CSim	44 Cotoneaster 'Simonsii'	30-60cm, 3L	5 breaks in lower third
	3/linm	Ee	41 Elaeagnus ebbingei	40-60cm, 5L	5 breaks in lower third
	4/m2	HHB	17 Hebe 'Midsummer Beauty'	30-40cm, 3L	3 breaks in lower third
	3/m2	HPD-1	25 Hydrangea paniculata 'Pink Diamond'	40-60cm, 3L	5 breaks in lower third on trellis frame
	SPEC	Hpe	3 Hydrangea petiolaris	1.5m, 15L	Full pot
	6/m2	Hxh	15 Helleborus x hybridus	20-30cm, 3L	Full pot
	4/m2	HyA	38 Hydrangea 'Annabelle'	40-50cm, 3L	5 breaks in lower third
	TREE	LsS	1 Liquidambar styraciflua 'Slender Silhouette'	3.5m, 2m clear stem	20-24cm RB
	4/m2	Ma	28 Mahonia aquifolium 'Apollo'	20-30cm, 3L	main leader, well branched
	3/m2	Pols	9 Polystichum setiferum	40-60, 5L	Full pot
	4/m2	SKG	26 Skimmia x confusa 'Kew Green'	30-40cm, 3L	5 breaks in lower third
	4/m2	SRe	2 Skimmia 'Reevesiana'	40-50cm, 12L	7 breaks in lower third
	SPEC	VpM	2 Viburnum plicatum 'Mariesii'	70-80cm, 15L	7 breaks in lower third

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083. Caerleon